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The Relationship between Future Anxiety and Wellness: What is the Role of Hope and Gender?

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Introduction: Anxiety about the future can have various effects on individuals' lives; these concerns can pose a significant risk to the wellness of emerging adults, especially those who are in the process of identity exploration. This study aims to investigate the moderating role of gender and the mediating roles of the hope agency and hope pathways sub-dimensions of hope in the link between future anxiety and wellness. **Method:** The sample consisted of 334 university students (62.6% female and 37.4% male) aged between 18 and 28 years ($M = 21.07$; $SD = 1.96$). Data from the participants were collected using a personal information form, the Future Anxiety Scale in University Students, the Wellness Scale for Emerging Adults, and the Dispositional Hope Scale. The PROCESS macro was used to analyse the moderating role of gender and the mediating roles of hope agency and hope pathways in the relationship between future anxiety and wellness in emerging adults. **Results:** Hope agency, one of the sub-dimensions of hope, has a mediating role in the relationship between future anxiety and wellness ($B = -.11$, 95% CI = $-.16$ to $-.06$). Gender also plays a moderating role between future anxiety and wellness ($\beta = -.12$, 95% CI = $-.20$ to $-.03$). **Conclusion:** In the relationship between future anxiety and wellness in emerging adults, hope agency plays a mediating role, and gender plays a moderating role.

La relación entre la ansiedad futura y el bienestar: ¿cuál es el papel de la esperanza y el género?

R E S U M E N

Introducción: La ansiedad por el futuro puede tener diversos efectos en la vida de las personas; estas preocupaciones pueden representar un riesgo significativo para el bienestar de los adultos emergentes, especialmente de aquellos que se encuentran en proceso de exploración de identidad. Este estudio tiene como objetivo examinar el papel moderador del género y los roles mediadores de las subdimensiones de la esperanza —pensamiento actual y formas alternativas de pensamiento— en la relación entre la ansiedad futura y el bienestar. **Método:** La muestra estuvo compuesta por 334 estudiantes universitarios (62,6 % mujeres y 37,4 % hombres) con edades entre 18 y 28 años ($M = 21,07$; $DE = 1,96$). Se recopilaban datos mediante un formulario de información personal, la Escala de Ansiedad Futura en Estudiantes Universitarios, la Escala de Bienestar para Adultos Emergentes y la Escala de Esperanza Disposicional. Se utilizó la macro PROCESS para analizar el papel moderador del género y los roles mediadores de pensamiento actual y formas alternativas de pensamiento. **Resultados:** Pensamiento actual desempeñó un papel mediador significativo en la relación entre la ansiedad futura y el bienestar ($B = -.11$; IC 95 % = $-.16$ a $-.06$). El género también moderó esta relación ($\beta = -.12$; IC 95 % = $-.20$ a $-.03$), mostrando diferencias en función del género. **Conclusión:** En adultos emergentes, pensamiento actual media la relación entre la ansiedad futura y el bienestar, mientras que el género actúa como variable moderadora.

Palabras clave:

Adulthood emergente

Ansiedad futura

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Introduction

Emerging adulthood, which encompasses individuals between the ages of 18–29 (Arnett et al., 2014), refers to the period in which individuals are still in the process of education and training, make frequent job changes, establish romantic relationships, and move towards choosing their future permanent jobs and establishing permanent romantic relationships (Arnett, 2007). During this period, individuals are attempting to define their identities through a variety of experiences, particularly in the areas of career, work, and love; they are experiencing instability; they are focusing more on their personal lives; they feel caught in the middle, as they perceive themselves as neither adolescent nor adult (Arnett, 2004). Considering these characteristics of emerging adulthood, individuals in this period may worry about their future due to the continuation of their identity formation processes and the lack of stability in their lives (LeBlanc et al., 2020).

Szota et al. (2024) concluded in their study that emerging adults' future anxiety was significantly higher than the future anxiety of other age groups. Although they did not directly examine the distribution of future anxiety, the results of studies examining the distribution of individuals experiencing anxiety by age are similar. The research report by Statista (2023) revealed that individuals experiencing moderate and severe anxiety worldwide in 2022 were primarily between the ages of 18–24 and 25–34, respectively. Terlizzi and Zablotzky (2024) obtained a similar finding, determining that individual between the ages of 18–29 experienced the most anxiety at both mild, moderate, and severe levels. In another study measuring the anxiety tendencies of adults in the USA, the age group with the highest increase in anxiety levels from 2008 to 2018 was the 18–25 age group (Goodwin et al., 2020). As can be understood from the literature, it can be stated that anxiety about the future is particularly important in this age group.

Anxiety is an emotional reaction that occurs when an individual encounters an unexpected and negative situation or anticipates such a situation and believes that they cannot control it (Arnau, 2018). Anxiety is a normal emotion, but when experienced intensely and continuously, it can negatively affect an individual's functionality (Tuma & Maser, 2019). Future anxiety, which can be defined as a special form of anxiety, refers to the uncertainty, fear, and concerns an individual feels about their long-term goals (Dalmış et al., 2025). In the literature, it has been stated that negative thoughts about the future can weaken an individual's mental well-being (Holman & Silver, 2005); in addition, there is a negative relationship between subjective well-being and future anxiety (Dalmış et al., 2025). In line with these findings, it is important to investigate the relationship between the concept of well-being, which includes elements such as an individual's satisfaction with their life and showing psychological resilience, and future anxiety.

Considering that future anxiety is predominantly a cognitive process, it makes sense to focus on resources that can reduce or transform this anxiety. In this context, positive psychology addresses concepts that increase the psychological strength of the individual, such as hope, optimism, personal meaning, goal orientation, and happiness (Elliot, 2002). At this point, the concept of hope, one of the basic components of positive psychology, comes to the fore. Hope is a structure that reinforces the individual's belief that they can achieve their goals and increases psychological resilience against anxiety (Richardson, 2023). In addition, hope plays a supportive role for the individual at both motivational and behavioral levels (Corrigan & Schutte, 2023; Zaleski, 2005). For example, Hassan et al. (2018) showed that hopeful individuals have more positive expectations for the future, are more satisfied with their lives, and are happier in general (Hassan et al., 2018). It has been stated in the

literature that hope is also positively related to psychological well-being (Murphy, 2023; Hussien et al., 2021).

Considering all these findings, considering the relationships between future anxiety, hope, and wellness together can fill an important gap, especially for emerging adults. Indeed, studies examining these three variables in the same model are quite limited in literature. In this context, the aim of this study is to examine whether hope plays a mediating role in the relationship between future anxiety and wellness and whether gender has a moderating effect on this relationship.

Future Anxiety

Future anxiety refers to the anxiety, fear, and worry experienced by an individual regarding changes that may occur in the distant future (Zaleski, 1996; Zaleski et al., 2019). An individual's negative thoughts about future events play an important role in their anxiety about the future (Zaleski, 1996, 2005). Simultaneously, an individual's personality traits, life experiences, and global situations such as war, environmental pollution, and diseases all contribute to the emergence of future anxiety (Torrado et al., 2024; Zaleski, 1996, 2005). The literature reveals that researchers have conducted studies to study the influence of the COVID-19 pandemic, a recent global health crisis, on individuals' future anxiety. For example, in the research conducted by Lorini et al. (2023) during the pandemic, it was determined that university students experienced high levels of future anxiety, were disturbed by the situation of not being able to achieve their goals, and their well-being was at a low level. In the research of Pan et al. (2024), they concluded that COVID-19 intolerance of uncertainty predicted future anxiety. Again, there are findings in many studies that the COVID-19 pandemic increases future anxiety (Duplaga & Gryzstar, 2021; Paredes et al., 2021; Scandurra et al., 2023; Yildirim et al., 2023). In this context, we can assert that a global situation like the pandemic particularly intensifies the future anxiety of emerging adults.

Future anxiety influences individuals' thoughts, behaviours, and attitudes (Torrado et al., 2024; Tucholska et al., 2022; Zaleski, 1996). The factors identified as determinants in the increase of future anxiety include the perceived importance of the anticipated event, its likelihood of occurrence, its controllability, and the individual's self-efficacy perception (Yildirim et al., 2023; Zaleski, 1996, 2005). In the studies conducted in the literature, future anxiety has been positively associated with depression (Regnoli et al., 2024; Szota et al., 2024), stress (Regnoli et al., 2024), intolerance of uncertainty (Gülirmak Güler & Albayrak Günday, 2024; Regnoli et al., 2024), procrastination (Przepiorka et al., 2023), loneliness (Jannini et al., 2024), and hopelessness (Dinc et al., 2024); it has been determined that it is negatively correlated with mental well-being (Paredes et al., 2021), mindfulness (Chen et al., 2022), self-efficacy (Szota et al., 2024), resilience (Paredes et al., 2021; Yildirim et al., 2023), and quality of life (Jannini et al., 2024).

Future Anxiety and Wellness

Future anxiety can lead individuals to cognitively lower their expectations about the future, focus solely on the present, or avoid reflecting on the past. Behaviorally, it may cause them to adopt a passive attitude toward the future, refrain from exploring new and constructive coping strategies, rely on familiar methods, and prioritize maintaining the status quo. Additionally, individuals may employ defense mechanisms, such as rationalizing the situation or attributing blame to others, to mitigate the impact of their anxiety

(Zaleski, 1996, 2005). However, individuals who experience future anxiety tend to give less importance to their bodies and health when thinking about their future, experience more somatic symptoms, struggle less to improve their lives, and find it meaningless to try new things in life (Zaleski, 1996). Indeed, in other studies in the literature, future anxiety is positively associated with depression (Regnoli et al., 2024; Szota et al., 2024), procrastination (Przepiorka et al., 2023), and loneliness (Jannini et al., 2024), while it is negatively associated with conscious awareness (Chen et al., 2022), quality of life (Jannini et al., 2024), and mental well-being (Paredes et al., 2021). When looking at the variables related to future anxiety, it can be thought that it may have a negative relationship with wellness. However, no study has been found that demonstrates its relationship with wellness.

When the literature is examined, it is seen that there are different concepts of well-being, but it is useful to define these concepts to better understand why wellness was chosen among these concepts. Well-being in general is defined as a life in which negative emotions such as anxiety are low, positive emotions such as happiness are dominant, and life satisfaction and functionality are high (Centers for Disease Control and Prevention, 2022). In addition, well-being is also conceptualized in different ways, such as psychological well-being and subjective well-being. Psychological well-being includes a life in which the individual determines the appropriate environment for himself, develops positive relationships with others, accepts himself in all aspects, organizes his life in the way he wants, strives for self-actualization, and acquires goals that will make his life meaningful (Ryff & Singer, 2008). Subjective well-being is defined as the individual's evaluation of life experiences from his own perspective (Diener & Ryan, 2009). These evaluations of the individual include both positive and negative emotions and include satisfaction with his or her life (Diener et al., 1998; Tov & Diener, 2013). Myers et al. (2000) define wellness as a lifestyle that integrates an individual's physical, mental, and spiritual well-being with the aim of maximizing their health and well-being. Similarly, the Global Wellness Institute (GWI) (2024) describes wellness as the individual actively following lifestyles and actions that contribute to their health holistically in physical, mental, emotional, spiritual, social, and environmental dimensions. In this context, wellness stands out and differs from well-being in that it is a person's continuous effort to actively increase their well-being in different dimensions. Considering this situation, the concept of wellness was particularly preferred in the study.

Future Anxiety and Hope

The future, which consists of individuals' goals and plans, can create uncertainty for some individuals and cause them to worry (Zaleski, 2005). This future anxiety can cause the individual to lose track of their ability to be successful in their future actions, to avoid the future and focus on the present and past, to remain passive in life and stick to their routines, and to stay away from new actions (Zaleski, 1996, 2005). At the same time, individuals who worry about the future often find it meaningless to take action in their lives and tend to avoid making plans for the future (Zaleski, 1996). On the contrary, being hopeful allows the individual to look at the future more positively.

The ability of an individual to motivate themselves by thinking about ways to achieve desired goals and thinking actively to use these ways is defined as hope (Snyder, 2002; Snyder et al., 1991; Snyder et al., 2005). Snyder (2002) has detailed the concepts of goals, pathways thinking, and agency thinking in the definition of

hope. Goals, which can vary from person to person, from short-term to long-term, and from clear to vague, are things that an individual wants to achieve and experience (Feldman & Kubota, 2015; Snyder, 1994, 2002). While agency thinking refers to the individual's determination to pursue his/her goals in order to achieve them, pathways thinking refers to the individual's ability to make plans to achieve them (Snyder, 2002; Snyder et al., 1991). While statements such as "I can do this" reflect the individual's agency thinking, statements such as "I can find a way to do this" reflect the individual's pathways thinking (Snyder et al., 1998; Weis & Speridakos, 2011). People with high levels of hope are more likely to make statements that express their belief that they can achieve their goals and adapt to the challenges they may face (Baourda et al., 2024; Snyder et al., 1998). These people can think of many ways to achieve their goals (Snyder et al., 2002). Therefore, a high level of hope can make it easier for people to achieve their goals (Wong & Cheung, 2024). In this context, a negative relationship between future anxiety and hope can be expected. Numerous studies in the literature (Aydin & Odaci, 2021; Chang et al., 2018; Chang et al., 2019; Corrigan & Schutte, 2023; Muyan et al., 2016) demonstrate a negative relationship between anxiety and hope. However, it is noteworthy that studies examining the relationships between future anxiety and hope are limited (Tucholska et al., 2022).

Hope and Wellness

The ability of an individual to perform behaviors and structure their life to improve their well-being and health is known as wellness. Snyder (2002) states that individuals will experience positive emotions if they successfully set their goals, are determined to achieve them (agency thinking), and think about ways to achieve them (pathways thinking). He also stresses that there is a positive correlation between hope—which consists of individuals believing in achieving their goals and thinking about ways to achieve them—and well-being. Murphy (2023) also states that hope clearly contributes to the increase in the individual's well-being. People with high levels of hope are less likely to experience negative emotions because they can completely change their path or purpose to achieve their goal when necessary (Baourda et al., 2024; Rodriguez-Hanley & Snyder, 2000).

Studies in the literature show that there is a positive relationship between hope and subjective well-being (D'Souza et al., 2020; Pleeing et al., 2021; Rand et al., 2020; Satici, 2016; Yalmez-Yildirim & Cenkseven-Önder, 2023; Yıldırım & Arslan, 2022). Similar to subjective well-being, psychological well-being is also associated with hope (Kardas et al., 2019; Lourenço et al., 2021; Tran et al., 2024). Research has linked hope positively with physical health and social well-being and negatively with psychological distress (Long et al., 2020; Long et al., 2024; Scioli et al., 2016). Only one study examined the relationship between hope and wellness, and it found a positive relationship (Hussien et al., 2021). It is evident that the current literature contains a variety of research investigating the relationship between hope and various wellness-related variables, such as physical health, psychological well-being, and subjective well-being; there are few studies directly examining this relationship.

The Mediating Roles of Hope Agency and Hope Pathways on Relationships between Future Anxiety and Wellness

Future anxiety is defined as the concern an individual feels about their future life (Dalmış et al., 2025). The intensity of this anxiety

can also negatively affect an individual's well-being. On the other hand, hope is a psychological resource that helps a person reduce their negative emotions and recover (Ong et al., 2006). Including hope in the relationship between future anxiety and wellness can reduce the negative effects of an individual's anxiety about their future on their mental health. In this context, hope can mediate the relationship between future anxiety and well-being. Indeed, when the studies in the literature are examined, it is seen that hope plays a mediating role in the relationships between various variables. For example, Satici (2016) concluded that hope mediates the relationship between psychological vulnerability and subjective well-being. Wang et al. (2004) determined that hope mediates the relationship between anxiety and sleep quality. Parviniannasab et al. (2024) found that hope plays a mediating role between uncertainty and self-management. Sarker et al. (2022) revealed that hope mediates the relationship between fear of COVID-19 and mental health. Belen et al. (2020) also found that hope has a mediating role in the relationship between fear of happiness and flourishing. Although these studies offer different conceptual frameworks, they are important in terms of touching on both wellness dimensions and negative expectations for the future. However, a study has not yet been found that directly tests the mediating role of hope in the relationship between future anxiety and wellness. Therefore, the current study may provide a new perspective on the role of hope.

While a sub-dimension of hope, pathways thinking, expresses an individual's problem-solving skills and strategy production; the other sub-dimension of hope, agency thinking, represents an individual's determination and effort towards achieving a goal (Snyder, 2002). The lack of expectations and the dominance of negative scenarios in individuals experiencing future anxiety may cause the individual to move away from their determination regarding their goals, which in turn may negatively affect their wellness. Indeed, when the literature is examined, there are findings that in studies related to hope, agency thinking plays a mediating role between various psychological variables and predicts it better than pathways thinking (Chan et al., 2023; Corrigan & Schutte, 2023; Yan et al., 2024). For example, Corrigan and Schutte (2023) revealed in their meta-analysis study that both components are related to depression and anxiety, but stated that agency thinking plays a particularly decisive role. Similarly, Tong et al. (2010) stated that individuals with high hopefulness can maintain their belief in goal attainment even when their personal resources are depleted, and this is an indicator of agency thinking. Bailey et al. (2007) found that agency thinking predicted life satisfaction more strongly than the pathways thinking component. In line with this information, in situations of crisis, uncertainty, and obstacles—which are quite common in the context of future anxiety—an individual's ability to maintain their belief in the goal, that is, agency thinking remaining active, may be a determinant of positive mental health indicators (e.g., life satisfaction, well-being) (Bailey et al., 2007). Therefore, the current study is based on the assumption that agency thinking will play a more important role than pathways thinking in the relationship between future anxiety and wellness.

The Moderating Role of Gender

Considering that future anxiety indicates a person's concern about the future, this may negatively affect a person's wellness. In addition, gender differences in the relationship between future anxiety and wellness may also change the intensity of the relationship. The fact that women have greater sensitivity (Alshaer & Kaviani, 2019) may cause them to feel more intense

anxiety about the future. Conversely, the fact that men are culturally expected to take more responsibility compared to women may cause more future anxiety in men (Hammad, 2016; Kaygusuz et al., 2015). When the literature is examined, it is generally observed that females experience more anxiety about the future (Awad et al., 2024; Guskowska & Bodasińska, 2023; Jannini et al., 2022; Karam et al., 2024; Lorini et al., 2023; Zaleski et al., 2019). However, there are also studies, albeit limited in number, that show men's future anxieties are higher than female's future anxieties (Purnomo & Arumi, 2024; Al Qaisy & Thawabieh, 2017). These contradictory findings indicate that gender may be a potential moderator variable in this relationship. Indeed, previous studies have also shown that gender may play a moderator role in the relationships between variables such as anxiety and quality of life (Yen et al., 2011). Caputi and Bosacki (2023) determined in their research that generalized anxiety predicted life satisfaction in both men and women. Similarly, Sürücü et al. (2021) showed the moderator effect of gender in the relationship between fear of COVID-19 and flourishing, showing that women's flourishing levels were affected more compared to men. Therefore, although there is no study directly examining the moderating effect of gender on the relationship between future anxiety and wellness, the existing literature provides strong clues that such an interaction may exist. All these findings reveal that the interaction between future anxiety and gender has a complex structure and that more research is needed in this area.

The Present Study

The aim of this study is to investigate the mediating role of hope agency and hope pathways in the relationship between future anxiety and wellness among Turkish emerging adults. Such studies may contribute to our better understanding of the well-being of emerging adults and related psychological states. Consistent with the relevant literature, we anticipated that agency thinking would be more important than pathway thinking. Currently, no study has examined hope as a potential mediator in determining the relationship between future anxiety and wellness. In addition, another aim of this study is to examine the moderating role of gender in the relationship between future anxiety and wellness. Figure 1 shows the model for the moderating role of gender in our study.

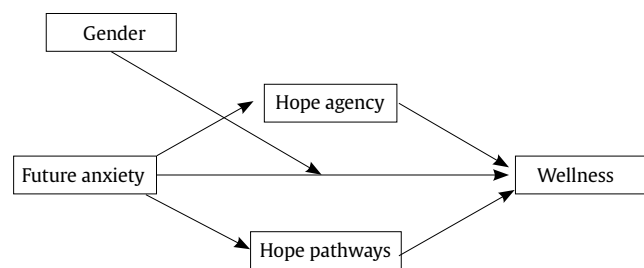


Figure 1. The conceptual model for the study.

Method

Participant

We conducted a priori power analysis with the G*Power 3.1.9.7 (Faul et al., 2009) program to calculate the sample size. We used the standard effect sizes suggested by Cohen (1992) in this analysis. In

the analysis, the effect size $f^2 = 0.15$, $\alpha = 0.05$, power ($1 - \beta$ err prob) = 0.95, and the number of predictors = 3 was taken. As a result, we calculated the minimum sample size to be 119 participants. The sample consisted of 334 university students, aged 18 to 28 ($M = 21.07$, $SD = 1.96$), from 65 of 81 Turkish cities (209 [62.6%] females and 125 [37.4%] males). The convenience sampling method, which means easy access to the sample, was used by the researcher in creating the sample. We recruited them using a web-based questionnaire, and their participation was voluntary. We asked participants to complete measures measuring future anxiety, hope, and wellness, in addition to baseline information such as gender, age, and city of residence.

Measures

Personal Information Form. It was used to obtain demographic information of the participants (gender, age, university, and department).

Future Anxiety Scale in University Students. The Future Anxiety Scale in University Students, developed by Geylani and Çiriş-Yıldız (2022), was used to measure the participants' future anxiety. The scale, which has two sub-dimensions called future fear (e.g., "I'm afraid of failing in the future") and despair of the future (e.g., "I look to the future with hope and enthusiasm"), is a 5-point Likert type (1 = never, 5 = always) and consists of 19 items. In the scale development study, it was revealed that the factor loadings of the items in the future fear sub-dimension were between .87 and .73, and the factor loadings of the items in the despair of the future sub-dimension were between .89 and .66. Again, in the study in which the scale was developed, it was seen that the fit values were $\chi^2/df = 4.43$, $GFI = 0.86$, $CFI = 0.90$, $NFI = 0.88$, $TLI = 0.89$, and $RMSEA = 0.093$. In the scale development study, it was determined that the Cronbach's alpha value of the scores obtained from the entire scale was .91, the Cronbach's alpha value of the scores obtained from the future fear sub-dimension was .95, and the Cronbach's alpha value obtained from the despair of the future sub-dimension was .88. Table 1 displays the Cronbach's Alpha and McDonald's Omega values derived from the scale scores in the current study.

Wellness Scale for Emerging Adults. The Wellness Scale for Emerging Adults, developed by Siyez et al. (2022), was used to measure the wellness of the participants. The single-dimensional scale is a 5-point Likert type (1 = Strongly dissatisfied, 5 = Strongly satisfied) and consists of 12 items (e.g., "Family life"). In the scale development study, it was determined that the factor loadings of the scale items were in the range of .41 to .73, and the fit index values of the scale were $\chi^2/df = 2.92$, $GFI = .93$, $AGFI = .90$, $CFI = .92$, $RMSEA = .07$, and $SRMR = .06$. While the scale development study revealed the factor structure of the scale with a Cronbach's Alpha internal consistency coefficient of .81, the confirmatory factor analysis confirmed the scale structure with a Cronbach's Alpha internal consistency coefficient of .82. Table 1 displays the Cronbach's Alpha and McDonald's Omega values derived from the scale scores in the current study.

Dispositional Hope Scale. In order to measure the hope levels of the participants, the Dispositional Hope Scale, developed by Snyder et al. (1991) and adapted to Turkish culture by Tarhan and Bacanlı (2015), was used. The scale, which has two sub-dimensions called actuating thinking (e.g., "I energetically pursue my goals") and alternative ways thinking (e.g., "I can think of many ways to get out of a jam"), is an 8-point Likert type (1 = Definitely False, 8 = Definitely True) and consists of 12 items. In the original version of the scale and in the literature, these sub-dimensions correspond to agency and pathways, respectively. In the scale adaptation study, it was ob-

served that the factor loadings of the items in the actuating thinking sub-dimension of the scale ranged from .91 to .54, and the factor loadings of the items in the alternative ways thinking sub-dimension ranged from .81 to .63. The fit values of the scale in the adaptation study were determined as $GFI = .96$, $AGFI = .92$, $RMR = .08$, $NNFI = .94$, $RFI = .90$, $CFI = .96$, and $RMSEA = .077$. The Cronbach's Alpha value obtained in the adaptation study was .84. Table 1 displays the Cronbach's Alpha and McDonald's Omega values derived from the scale scores in the current study.

Data Analysis

We checked the dataset for missing data, univariate and multivariate outliers, and normal distributions. We found no missing values in the data set. The criteria for univariate z-scores were $z < 3.29$, and the criteria for multivariate outliers were a Mahalanobis distance value corresponding to $p < .001$ (Tabachnick and Fidell, 2007). We found three participants to be outliers for each of the two criteria and removed a total of six participants from further analysis. We used the PROCESS macro for SPSS (Model 4, Hayes 2017) to examine the parallel mediating roles of hope agency and hope pathways in the relationship between future anxiety and wellness among emerging adults. Similarly, we investigated the moderating role of gender in the relationship between future anxiety and wellness with PROCESS Macro for SPSS (Model 5, Hayes 2017). The reason for performing moderation analysis in this study, compared to other analyses such as regression, is that it allows determining in which situations, in which direction (positive or negative), and at what level (weak, moderate, or strong) the relationship between two variables occurs depending on the moderator variable (Hayes, 2017).

The analysis included age as covariate factors to assess the study's hypotheses. Hayes uses covariate approaches for statistical analysis when developing models, especially in the PROCESS macro framework. By accounting for potential confounding variables, these approaches improve the validity of results from moderation and mediation analyses. By considering the unpredictability of other factors, they enable researchers to isolate certain impacts. In all linear equations and process estimations, every variable that appears in this list but isn't given a role elsewhere in the process command can be automatically included as a covariate (Hayes, 2012). We investigated the statistical significance of the mediating variable using 5000 bootstrap samples. This method generated the 95% CI for the indirect impacts. Hayes (2017) defined statistical significance as bootstrapped 95% CIs that did not cross zero.

Statistical Assumption Tests

We also examined the assumptions under this heading. The results showed that the skewness and kurtosis of the variables varied from -.38 to -.19 and -.51 to .03, respectively, supporting the normalcy requirements. The tolerance value varied from .45 to .58, the variance inflation factor values ranged from 1.74 to 2.22, and the Durbin-Watson value was 1.97. When we examined this data in light of Field's (2024) guideline, we found an absence of residual issues and multicollinearity. Therefore, one could conclude that we validated all the assumptions.

Ethics

The research team carried out the study (REF, 871380) with approval from the university ethics committee, using only volunteers.

Table 1
Descriptive statistics and correlation among study variables (N=334)

| Variable | ω | α | M | SD | Skewness | Kurtosis | 1 | 2 | 3 |
|----------|----------|----------|-------|-------|----------|----------|--------|-------|-------|
| 1.FA | .93 | .93 | 54.57 | 14.96 | -.19 | -.51 | | | |
| 2.HA | .82 | .82 | 22.54 | 5.25 | -.38 | .03 | -.64** | | |
| 3. HP | .79 | .79 | 25.05 | 4.50 | -.35 | -.29 | -.50** | .64** | |
| 4.WL | .80 | .79 | 44.67 | 7.28 | -.32 | .17 | -.53** | .54** | .34** |

FA Future Anxiety; HA Hope Agency; HP Hope Pathways; WL Wellness
** $p < .01$.

The national and institutional human experimentation committees established ethical standards and the 1975 Helsinki Declaration, revised in 2000, guided each procedure. Prior to participating in the trial, each participant provided their informed consent.

Results

Preliminary Analysis

Table 1 displays the correlations, means, and standard deviations for every study variable. Each variable exhibited a significant and expected correlation. Future anxiety was found to be negatively related to hope agency, hope pathways, and wellness. On the other hand, there is a positive relationship between wellness, hope agency, and hope pathways.

The Mediating Roles of Hope Agency and Hope Pathways on Relationships between Future Anxiety and Wellness

We employed a parallel mediation model to examine the relationships between future anxiety and wellness, mediated by hope agency and hope pathways in emerging adults. Figure 2 and Table 2 present the findings from our study model.

Future anxiety was significantly associated with hope agency ($B = -.23, p < .001, 95\% \text{ CI} = -.26 - -.20$) and hope pathways ($B = -.15, p < .001, 95\% \text{ CI} = -.18 - -.12$). It was also associated with wellness ($B = -.17, p < .001, 95\% \text{ CI} = -.23 - -.12$). The results showed that in the relationship between future anxiety and wellness, the mediating role of hope agency ($B = .48, p < .001, 95\% \text{ CI} = [.31, .66]$) was significant, whereas the hope pathways ($B = -.05, p > .05, 95\% \text{ CI} = [-.23, .14]$ included zero) were not significant. This result shows that hope agency functions as a mediator.

Table 2
The indirect effect of future anxiety on wellness via hope agency and hope pathways

| Paths | Coefficient | SE | %95 BC CI | |
|-----------------------|-------------|-----|-----------|-------|
| | | | Lower | Upper |
| Total Indirect Effect | -.11 | .02 | -.15 | -.06 |
| FA → HA → WL | -.11 | .03 | -.16 | -.06 |
| FA → HP → WL | .01 | .01 | -.02 | .03 |
| C1 | -.12 | .03 | -.19 | -.06 |

FA Future Anxiety; HA Hope Agency; HP Hope Pathways; WL Wellness.

After the mediators were analyzed (Table 2), it was determined that future anxiety was an indirect predictor of wellness through hope agency ($B = -.11, 95\% \text{ CI} = [-.16 - -.06]$). Conversely, it was determined that future anxiety was not an indirect predictor of wellness through hope pathways ($B = .01, 95\% \text{ CI} = [-.02 - .03]$ included zero). Consistent with these findings, the indirect effect of hope agency was significantly bigger than that of hope pathways ($B = -.12, 95\% \text{ CI} = [-.19 - -.06]$).

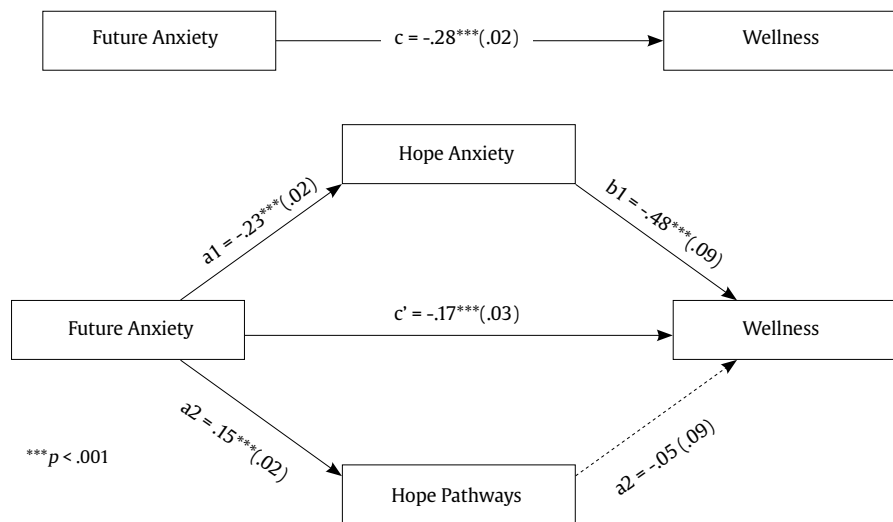


Figure 2. Parallel mediation model of future anxiety on wellness via hope agency and hope pathways.

Table 3
The Moderating Effect of Gender on Relationships between future anxiety

| Conditional indirect effect | Condition | Effect (β) | SE | t | %95 BC CI | |
|-----------------------------|-----------|--------------------|-----|----------|-----------|------|
| | | | | | LLCI | ULCI |
| FA (X)→ WL (Y) | Female | -.12 | .03 | -3.64** | -.19 | -.06 |
| | Male | -.24 | .04 | -6.16*** | -.32 | -.16 |

Note. The Process macro Model 5 is employed. Age is as covariate. FA Future Anxiety; WL Wellness, ***p<.001, ** p<.005.

The Moderating Role of Gender on Relationships between Future Anxiety and Wellness

We employed the bootstrapping method and a further conditional process (moderation) analysis to identify the gender-influenced conditional indirect effect of future anxiety on wellness (Model 5, Hayes 2017). A mixed moderation and moderated mediation regression analysis was used to look at wellness. Future anxiety was the main independent variable, gender was the moderator, and hope agency and hope pathways were the mediators (Model 5, Hayes 2017). Gender was found to moderate the relationship between future anxiety and wellness (Int_1; $\beta = -.12$, SE = .04, $p < .05$, 95% CI [-.20,-.03]). Table 3 shows the direct gender difference effects. The conditional direct effect of future anxiety on wellness was significant for both females ($\beta = -.12$, SE = .03, 95% CI [-.19,-.06]), and males ($\beta = -.24$, SE = .04, 95% CI [-.32,-.16]). To help in interpreting the moderating effects of gender on the relationship between future anxiety and wellness, we divided future anxiety into groups: low future anxiety, average, and high future anxiety (i.e., mean and ± 1 SD of the mean). We compared the slopes of gender in the relationship between future anxiety and wellness. Figure 3 shows the slopes of the regression lines, which indicate that the impact of future anxiety on wellness is greater for males than for females. This consequence indicates that the effect of future anxiety on wellness was stronger for males than for females.

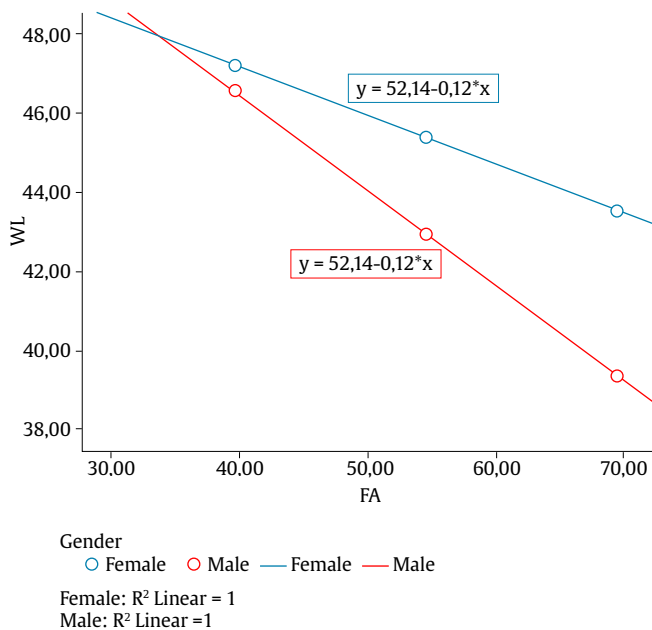


Figure 3. The moderating effect of gender on the relationship between future anxiety and wellness.

Discussion

Psychological threats, unexpected situations, and the individual's cognitive mechanisms related to future life can lead to increased fear and anxiety (Duplaga & Grysztar, 2021; Schmid et al., 2011). In this context, emerging adults clearly exhibit future anxiety, which begins during their decision-making period regarding work, family, and career issues (Arnett, 2014; Hammad, 2016; Price, 2009; Shabahang et al., 2021; Van Oort et al., 2009). Therefore, university students in emerging adulthood were preferred in the sample group of the study. This preference stems from the increased prominence of future concerns in this age group (Dadaczynski et al., 2022; Hammad, 2016; Guzzo, 2014; Lanz et al., 2021; Shabahang et al., 2021; Silva, 2012; Szoto vd., 2024).

Our study indicated a negative relationship between future anxiety and wellness. An individual may experience a sense of helplessness, especially when he/she thinks that he/she is confused and feels that he/she cannot control his/her future; this makes him/her unable to think and plan for it and causes him/her to feel constant future anxiety (Craig et al., 2000; Molin, 1990; Torrado et al., 2024). This situation has a negative impact on physical and mental health (Carelli et al., 2015; Torrado et al., 2024; Zaleski, 1996, 2005; Zaleski et al., 2019). In addition, future anxiety has also been associated with a decrease in psychological and mental well-being (Boukes & Vliegenthart, 2017; Paredes et al., 2021). Considering that wellness is defined as adopting a functional life, setting goals, and maintaining physical, mental, and spiritual well-being as a whole (Myers et al., 2000, 2004), it can be stated that the negative relationship between future anxiety and wellness is consistent with the literature. In this context, it is important for mental health professionals to consider individuals' future anxiety during the counseling process. Especially in counseling sessions, focusing on areas where the individual feels uncertain or anxious about the future with awareness can both relieve the emotional burden of the client and contribute to wellness. This approach can be considered a practical contribution of the study to mental health practices.

Another of our research findings was that there was a negative association between future anxiety and hope. According to Zaleski (1996), future anxiety occurs when negative cognitive and emotional processes become more dominant than positive processes in an individual's attitudes toward the future. This situation causes fear to be stronger than hope. In a study, it was found that anxious individuals' thoughts about the future are mostly negative, but it is not related to decreasing positive future thinking, but it is related to hopelessness (MacLeod & Byrne, 1996). The study of Norton et al. (2000) also points out that the future is a vital area in anxiety disorder; it is stated in the study that expectations and hopes for the future are reflected in the behaviour of the individual. In the study of Dinc et al. (2024), it was determined that future anxiety has a positive relationship with hopelessness. Although the theoretical structure of future anxiety and hope is compatible, there has been relatively little research examining the relationship between the two variables. This study can add to the literature by examining this relationship.

When we look at the literature, there is a concept that can be confused with the concept of hope, the concept of growth mindset. A person's thoughts about their potential to develop their abilities are called mindsets (Haimovitz & Dweck, 2017). Accordingly, people who have adopted a fixed mindset have thoughts that their intellectual abilities will not change, while people who have adopted a growth mindset have thoughts that they can develop their intellectual abilities (Yeager & Dweck, 2012). Individuals with a fixed mindset tend to stay away from situations where they may experience failure (Claro et al., 2016). Individuals with a growth mindset, on the other hand, see challenging situations as opportunities to develop their abilities (Blackwell et al., 2007) and even look for other learning opportunities (Romero et al., 2014). In this context, the concept of growth mindset directly emphasizes a person's abilities, intelligence, and learning potential and that these can develop. The concept of hope emphasizes a person's belief that they can achieve their goals and thinking about ways to achieve their goals (Snyder, 2002). When the concept of growth mindset is compared to the concept of hope, it can be said that hope differs from the growth mindset in that it reveals the belief that the person can achieve their general goals in life rather than the belief that they can develop their intellectual abilities.

This study examined the mediating role of hope agency and hope pathways, which are subdimensions of hope, in addition to the moderating role of gender in the relationship between future anxiety and wellness. According to the findings, the agency thinking dimension of hope plays a mediating role in the relationship between future anxiety and wellness. In other studies, although the variables are different, it is seen that while agency thinking mediates the relationship between them, pathways thinking does not (Chang et al., 2016; Corrigan & Schutte, 2023; Schaffer et al., 2022). Considering that individuals with high future anxiety have low wellness, it is understood that agency thinking, which is the determination of the individual towards their goals, can play an important role in this relationship. In line with this finding, the level of agency that an individual has can contribute to reducing future anxiety and increasing wellness. In this context, it can be beneficial for the wellness of the individual for mental health professionals to give importance to motivational interviews that include action and belief, especially when working with individuals with high future anxiety.

In addition, gender was found to have a moderating role in this relationship; this effect is more pronounced in males compared to females. When the literature was examined, although it was examined how future anxiety or wellness scores differed according to gender, no study was found on its use as a moderator. In most of the studies examining how future anxiety varies by gender, it is seen that females experience more future anxiety than males (Duplaga & Gyszta, 2021; Torrado et al., 2024; Leung et al., 2021; Regnoli et al., 2024; Shabahang et al., 2021). In addition, some studies suggest that males have more future anxiety than females (Purnomo & Arumi, 2024). In another study, no significant effect of gender on future anxiety was found (al Matarneh & Altrawneh, 2014). However, in general, when gender roles are evaluated, expectations from men regarding having a job, starting a family, and managing these processes increase with the emerging adulthood period (Martinengo et al., 2010). Similarly, there are different views on the relationship between gender and wellness. For example, while some studies indicate that female individuals exhibit higher wellness than male individuals (Oleckno & Blacconiere, 1990), other studies have found that male individuals have higher wellness (DiLalla et al., 2004; Yalim et al., 2025). However, in some studies, wellness does not vary by gender (Naugle et al., 2013; Rayle, 2005). The differences in these

studies indicate that more research should be conducted on the relationship between wellness and gender.

Considering the finding in the current study that the relationship between future anxiety and wellness is more effective in men than in women, it can be recommended that mental health professionals give priority to future-oriented structured techniques in their interventions with male clients. In particular, exploration of value-based orientations (e.g., ACT-based approaches), goal-setting studies, and exercises for recognizing and using strengths can be applied.

Limitation and Future Studies

This study, like any other, has certain limitations. First of all, this study is a correlational study examining the relationships between variables. Therefore, causality between variables cannot be determined. In the future, experimental studies using a random sampling approach can be conducted to examine causality.

Another limitation of the study is the use of the convenience sampling method, which is a common limitation in social sciences research (Peterson & Merunka, 2014). Therefore, the generalizability of the results becomes challenging, potentially revealing unbalanced distributions in certain demographic variables such as grade level and gender. However, this study did not observe any such imbalance.

Furthermore, this study's sample comprises emerging adults; given this context, future research addressing a broader age range and analyzing measurement invariance across adult stages could potentially enhance the existing literature. In addition, this study did not compare individuals in emerging adulthood according to their relationship status, educational department, or other features. Additionally, this study did not account for broader contextual factors that may influence hope, future anxiety, and wellness, such as individuals' financial situations or global events (e.g., economic crises, pandemics). Future research could investigate how such external circumstances relate to the psychological variables examined in this study.

Another limitation of the study is related to the fit values of the Future Anxiety Scale among University Students, one of the scales used. Since some fit values of the Future Anxiety Scale among University Students are below acceptable limits, caution should be exercised when interpreting the findings of the study.

Finally, this study only includes the self-reports of the participants. Participants may deliberately or inadvertently respond with more favorable answers, which could lead to self-identification based on a response bias.

Conclusion

In this study, the mediating role of hope agency and hope pathways, which are sub-dimensions of hope, and the moderating role of gender in the relationship between future anxiety and wellness were examined. The results showed that the relationship between future anxiety and wellness was mediated by hope agency and that gender had a moderating role in the same relationship.

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